



COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board

Pedro J. Nieves Miranda, Esq.
Executive Director

Fax Cover

To: Ms. Judith A. Enck

Fax: (212)637-5024

From: Pedro J. Nieves Miranda, Esq.

Date: February 1, 2010

Re: **Puerto Rico Solid Waste Regulations**
("PRSWR")

Pages: 27 pages

Comments:

Cruz A. Matos Environmental Agencies Bldg., San José Industrial Park
1375 Ponce de León Ave., San Juan, PR 00926-2604
PO Box 11488, San Juan, PR 00910
Tel. 787-767-8056 • Fax 787-767-4861



GOVERNMENT OF PUERTO RICO
Office of the Governor
Environmental Quality Board

ACTION

CHAIRMAN'S OFFICE

January 11, 2010

Ms. Judith A. Enck
Regional Administrator
U.S. EPA Region 2
290 Broadway
New York, New York 10007-1866

Enck
Taylor
cc: Frazzetto
(w/enc)
LaRosa
Soderberg

Re: Puerto Rico's Solid Waste Regulations ("PRSWR")

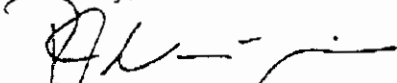
Dear Ms. Enck:

By letter dated August 10, 2009, the U.S. Environmental Protection Agency ("EPA") re-emphasized the need that the P.R. Environmental Quality Board ("EQB") take the necessary steps to revise the PRSWR's to be consistent with Federal landfill criteria (40 C.F.R. 258). Further to the discussions between EPA and EQB recently, EQB has addressed this matter as one of its top priorities.

EQB created a multidisciplinary group and assigned it the task of revising the PRSWR's. The Group prepared, analyzed and discussed internally a draft of the proposed PRSWR amendments, and recently presented a draft. Attached you will find for EPA's review and comments the draft proposed revisions to the PRSWR. EQB understands that this draft complies with all the concerns that we have discussed recently, and which were summarized in the August 10 letter.

We expect EPA to provide us with comments, if any, to the draft PRSWR's at its earliest convenience. EQB has finally got into the momentum to complete this longstanding task, and wishes to complete this effort by issuing a notice for public review not later than March 2010. Thanks in advance for your attention to this matter.

Sincerely,


Pedro J. Nieves-Miranda
Chairman

c: Mrs. Maria Rodriguez Muñoz, Manager, EQB Land Pollution Control Program

Edificio Agencias Ambientales Cruz A. Matos
Urb. San José Industrial Park, Ave. Ponce de León 1375, San Juan, PR 00926-2604
Apartado 11482, Santurce, PR 00910
Tel. 787 757 8184 Fax 787 757 1004

DRAFTS AMENDMENTS TO REGULATION OF NON-HAZARDOUS SOLID WASTE MANAGEMENT

Regla 502

INDUSTRIAL OR MINING BY-PRODUCTS

Material that is not a primary product of a particular industry or mining operation, or a secondary and incidental product of the particular operation. The term does not include intermediate industry or mining products that are raw materials for an additional process, provided this can be verified by the existence of a contract or any other reliable evidence to that effect.

Composite Liner

A system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

Disposal

Definitively discarding solid waste by discharge, destruction, deposit, injection, dispersion or filtering carried out within or on the land, into a body of water or into the air. The processing of solid waste to convert it to raw material for another process or to convert it into a reusable product is also considered disposal. Exporting is also considered disposal.

Existing Sanitary Landfill Facility

Any sanitary landfill facility that was in operation before October 9, 1993.

Inactive Part

The part of a Sanitary Landfill that was not in operation after 9 October 1993.

Partial Closure

Closure, in compliance with all applicable closure requirements, of one or more management units (cells) located at a solid waste facility that contains various active waste management units.

Industrial Waste

Solid waste generated by manufacturing or industrial processes that is not hazardous waste included in the Regulation for the Control of Hazardous Solid Waste, or by the Resource Conservation Recovery Act (RCRA). This includes, but is not limited to, waste resulting from:

- generation of electric power;
- application of chemical products for fertilization and agricultural purposes;
- preparation of foods and food products;
- inorganic chemicals;
- iron and steel manufacturing;
- production of leathers and leather products;
- manufacture of non-ferrous metals;
- production of paper and pulp;
- manufacture of plastics and resins;
- production of rubber and miscellaneous plastic products;
- production of stone, glass, clay, concrete and cement products;
- textile manufacturing;
- transportation equipment;
- water treatment.

This term does not include mining waste, oil or gas waste.

Lateral Expansion

Horizontal expansion of the boundaries of an existing solid waste landfill management unit.

Non-Hazardous Solid Waste Generating Activity

Any act, event or activity that produces non-hazardous solid waste. These activities include, but are not limited to:

- demolition of buildings;
- construction and development of structures for industrial, commercial, institutional or residential use;
- removal and disposal of asbestos and lead;
- cleanup of plots of land.

Non-Hazardous Solid Waste Management

Systematic administration and control of the storage, separation at the source, collection, transportation, transfer, treatment, recovery and disposal of non-hazardous solid waste.

Operator

Person or persons responsible for the overall or partial operation of a facility.

Qualified Ground-Water Scientist

Professional who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields, that may be supported by professional certification or certification of accredited university programs, which qualify that person to formulate professional judgements regarding groundwater monitoring, contaminant migration, and corrective actions.

Hazardous Solid Waste

Solid waste that is not excluded under Rule 102 of the Regulations for the Control of Hazardous Solid Waste.

Solid Waste Storage Facility

Any site authorized by the Environmental Quality Board to receive and store on a temporary basis non-hazardous solid waste without processing or disposal.

Solid Waste

Any garbage, refuse, residue, sludge, or other material discarded or intended for recycling, reuse and recovery, including solid, semi-solid or liquid materials, or containers that hold gaseous material generated by industry, business, mining, agricultural operations or domestic activities. This definition includes:

- materials that have been thrown away, abandoned or disposed of;
- discarded material or materials whose useful life has expired or which can no longer be used unless they are processed or recovered.

This definition does not include solid or dissolved materials in the domestic sewage or in irrigation return flows. It also does not include industrial discharges from point sources subject to permit under the Federal Clean Water Act of 1973, or source, special nuclear or by-product material as defined by the Federal Atomic Energy Act of 1954.

Structural Components

Any element used in the construction and operation of a sanitary landfill system that is essential to protect human health and the environment. Including covers, leachate collection systems, final cover and storm water control systems (run on/run off), among other things.

Underground Source Of Drinking Water

Aquifer that supplies or is capable of supplying drinking water for human consumption or contains less than 10,000 mg/l total dissolved solids.

Modification

Physical change to a solid waste facility or change in the method of operation that results in differences between the conditions existing at the facility and the information submitted to obtain a permit or identification number. The definition does not include routine maintenance and repair.

Transportation

The transfer or hauling of solid waste from one place to another for storage, recovery, recycling, treatment, compacting or final disposal.

Agricultural Burning

Term as defined in the Regulation for the Control of Atmospheric Pollution.

Commencement of Construction

When the owner or operator of a solid waste facility has:

- obtained all endorsements and permits prior to construction that are required by federal and Puerto Rican laws and regulations and has begun an on-going construction program at the location; or
- entered into agreements, commitments or contracts for the acquisition of equipment or to carry out a construction program within a reasonable time period.

Floodplain

The lowlands and relatively flat areas adjoining bodies of water that would be inundated by a 100-year flood.

Fugitive Emissions

Term as defined in the Regulation for the Control of Atmospheric Pollution.

Injection Well

Term as defined in the Regulation for the Control of Underground Injection.

Scrap

- Any motor vehicle, as defined in Law Number 22 of January 7, 2000, as amended, trailer, air or maritime transportation, whole or in parts, that does not function and has been abandoned.
- Metal fragments, pieces and parts from a piece of equipment or vehicle that have deteriorated and have been abandoned.

Municipality

Governmental entity created by virtue of Article 6, Section 1 of the Constitution of the Commonwealth of Puerto Rico and in accordance with Law 81 of August 30, 1991, also known as the Autonomous Municipalities Act, 21 L.P.R.A. § 4001.

Open Burning

Term as defined in the Regulation for the Control of Atmospheric Pollution.

Surface Water

Any natural or artificial body of water, including any current, lake, pond, reservoirs, interior currents and canals, springs, irrigation systems, drainage systems, intermittent flow bodies, accumulated waters, wetlands, estuaries, and coastal waters.

Rule 510 Purposes

The purposes of this Regulation are:

- A. to establish requirements for the management, storage, transportation, processing and disposal of non-hazardous solid waste, and for the administration and follow-up of activities related to non-hazardous solid waste facilities;
- B.
- C. to establish a program for the design, construction, operation, closure and post-closure maintenance of SLSs for non-hazardous solid waste. Said program shall comply with the minimum criteria of the **Resource Conservation and Recovery Act (RCRA)**, as amended, which applies to all sanitary landfill

systems. It shall also comply with the **Clean Water Act (CWA)**, which applies to all SLSs used for disposing of sludge, and the "**New Source Performance Standard**" of the **Clean Air Act (CAA)**. These minimum federal criteria are directed toward ensuring the protection of human health and the environment, and seek to prevent the illegal and improper disposal of solid waste;

Rule 511

D. Sanitary Landfill Systems (SLS) that have received wastes after October 9, 1991, and ceased to do so before October 9, 1993, are exempt from complying with the requirements of this Regulation, except the final cover requirement specified in Rule 565. The final cover should have been installed six months after the last receipt of waste. Owners or operators of SLS who fail to comply with the final cover requirement within the said term are subject to compliance with all the requirements of this Regulation, unless otherwise provided herein.

E. SLS that fail to meet these requirements will be considered open dumps, which are banned under this Regulation, and under the Resource Conservation and Recovery Act (RCRA).

Rule 513

A. The Environmental Quality Board, represented by its members, agents or employees, may enter and examine the premises, equipment, facilities and documents of any person, entity, company, agency or government instrumentality subject to its jurisdiction, for the purpose of investigating and/or inspecting environmental conditions.

1. In the event an identified official from the Environmental Quality Board is denied access or is prevented from carrying out an inspection, the Environmental Quality Board may issue an Administrative Order or obtain a Court Order, pursuant to the procedures stipulated by the Environmental Public Policy Act.

2. At any request for inspection of documentation by the Environmental Quality Board or by this Regulation, copy of said documents must be delivered within a period not to exceed forty-eight (48) hours or as stipulated by the Environmental Quality Board.

Rule 515

A.

B.

C. While any proposed amendment to or revision of this Regulation is pending, the Environmental Quality Board may grant a temporary permit or extend the term for the renewal of a permit applied for in a timely way. In cases where

temporary permits are granted to new facilities, the conditions under which said permit is granted shall be specified, along with the expiration date. To comply with the purposes of this Rule, an amendment to this Regulation shall be considered pending from the date of publication of the first notice about the public participation period and up to one hundred twenty (120) days after the end of said period, or until the effective date of the amendment, or until the date of final action by the Environmental Quality Board in which the amendment is adopted or not adopted, whichever occurs first.

D.

E. Anyone who requests authorization for an analytical or test method as an alternative to this Regulation shall request and must demonstrate to the satisfaction of the Environmental Quality Board that the proposed method is equal to or better than the one established herein in terms of precision, accuracy and sensitivity (ability to detect the substance or material).

Rule 516

A.

1. Every public notice related to a matter pending before the Environmental Quality Board shall specify the date, time and place where the documents will be available for public inspection. These documents shall include any preliminary determination by the Environmental Quality Board. Every public notice shall indicate the period during which interested persons may submit written comments, or request public hearings on proper grounds. **If public hearings are necessary, the notice shall specify the date, time and place of each hearing.**

2. Every public notice shall be published at least thirty (30) days prior to any final determination by the Environmental Quality Board in the matter in question, unless in an emergency situation the Environmental Quality Board determines that in the public's best interest it is necessary to make a final determination in a shorter period of time.

3. The notice shall be published in one (1) general circulation newspaper in Puerto Rico. When a public notice concerns consideration of an application for permit, waiver and authorization before the Environmental Quality Board, the applicant for the permit shall pay the cost prior to its publication.

D. After holding a public hearing, the Environmental Quality Board shall prepare a resolution detailing its final decision. Notice of this resolution shall be understood as having been made after it has been placed on file and mailed to the participating parties, and shall be made available to the public.

E. The promulgation, amendment and repeal of rules and regulations will be done in accordance with Chapter 2 of the Uniform Administrative Procedure Act,

Law 170 of August 12, 1988, as amended, and the Rules for Proceedings of Administrative Hearings of the EQB.

Rule 517

B. Every notice shall specify what the violation consisted of, the aspects that are not in compliance with this Regulation and the permits granted in virtue thereof. The notice shall specify the requirements and conditions that the Environmental Quality Board deems necessary, and it **shall** include deadlines for achieving compliance.

C. The foregoing notwithstanding, the Environmental Quality Board may, irrespective of whether a notice of deficiency has been issued, issue an Administrative Order to do, show cause or cease and desist, or any other action under the terms of the Environmental Public Policy Act.

Rule 519

A. Any violation of this Regulation shall be subject to the penalties established in the Environmental Public Policy Act and in such regulation as the Environmental Quality Board may approve in this regard.

E. Endangered species

No person may cause or allow the generation, storage, collection, **treatment**, transportation, recovery, disposal or management of non-hazardous solid waste in such a way as to affect or destroy any plant or animal species that is threatened or in danger of extinction, or as to cause or contribute to the modification or destruction of their habitat.

Rule 532

F. discharges that constitute **point sources** of water pollution, subject to permits under Section 402 of the Federal Clean Water Act.

Rule 535

Owners or operators of any non-hazardous solid waste disposal facility shall implement a program for detecting and preventing the disposal of regulated hazardous solid waste, special waste, PCB waste and restricted liquids at their facility. This program must include at least the following:

Rule 537

A. Monitoring and tracking

1. Except as provided below, the Environmental Quality Board shall require the owner or operator of any solid waste facility to provide for the monitoring and evaluation of their activities. This will require that the owner or operator install, use and maintain weighing equipment, **and sampling and analysis equipment** in order to determine the flow of solid waste that enters and leaves the facility.

3. Moreover, the owner or operator of any solid waste facility shall be required to establish and maintain adequate records of their activities, **and to submit periodic reports**. As a minimum, the Environmental Quality Board shall require the following:

a) for incinerators of non-hazardous solid waste with a capacity of more than six thousand (6,000) pounds per hour, a **daily** record shall be kept of the total weight of material incinerated and of the quantity of resulting residue. Information shall also be required about the hours of operation. The Environmental Quality Board will not require the above-mentioned records from owners or operators of non-hazardous solid waste incinerators and compactors with a capacity of less than six thousand (6,000) pounds per hour, but it may require other records and reports to be maintained;

b) for SLSs, daily reports of the operation shall be prepared and preserved. Said reports shall include at least the following:

- 1) total waste received during each shift, with the type, weight or volume;
- 2) equipment used for the final disposal of the waste;
- 3) space of the SLS used;
- 4) quantity of cover material used.
- 5) **cost of operation.**

A quarterly summary of this information shall be prepared and sent to the Environmental Quality Board.

B. Test methods

All tests and their results shall be performed and calculated in accordance with the methods and procedures specified in current regulations, and the tests and calculations shall be certified as correct by a licensed engineer ~~or any professional in the natural sciences who has training or experience in the subject~~. All chemical analyses shall be certified correct by a chemist licensed to practice the profession in Puerto Rico.

C.

The records and reports required by this Regulation shall be submitted with a certification, signed by the owner or operator, or a high ranking official who represents the entity or person who owns or operates the facility, that the information submitted is true and accurate. If the owner or operator of the facility

2. The owner or operator must include the demonstration of integrity of the

C. Unstable Areas

sign the certification.

D. Presentation of test results

The results of the tests shall be expressed in ~~only one unit system~~ **conventional metric units**. In presenting them, the relation between the measured values and the limits required by this Regulation or by the permits herein granted shall be shown.

F.

The Board may require the owner or operator of a solid waste facility or solid waste generating activity to prepare and submit a Sampling Plan for approval and to carry it out at his own cost. The owner or operator will be responsible of notifying EQB at least ten (10) days in advance the date, time and place where the samples will be taken in order for technical personnel from the Board to be present. Non compliance with this notification requirement will invalidate the sample and its results.

G.

2. The fact that a failure may occur in the normal operation of a facility or collection service or in the solid waste generating activity shall not relieve the owner or operator of the responsibility to comply with any other substantive provision of this Regulation or the permits issued hereunder.

3.

a) a certification confirming the correction of the malfunction and specifying the date of the correction, the method used to correct it and the evidence that it ~~has been corrected~~ **compliance was achieved**;

c) **photographs of the equipment or control systems that failed, accompanied by a signed certification by the photographer that they represent the reality.**

Rule 540

A. Geological fault areas

B. Seismic impact zones

C. Unstable Areas

2. The owner or operator must include the demonstration of integrity of the structural components in the construction permit application and in the operating record, the latter must be notified to EQB.

D. Areas near airports

1. The siting of new facilities, lateral expansions or existing SLSs shall not be permitted within a distance of ten thousand (10,000) feet (3,048 meters) from an **airport runway** used by turbine-powered (or jet engine) aircraft. Siting is also not permitted within a distance of five thousand (5,000) feet (1,524 meters) of any **airport runway** strip used by piston engine aircraft, unless the owners or operators demonstrate scientifically to the satisfaction of the Environmental Quality Board that said facility is designed and operated so as not to constitute a risk to air navigation due to the presence of birds.

2. Any person intending to site a new SLS or a lateral expansion of an existing SLS within a distance of five (5) miles of any **airport runway** strip used by turbine or piston engine aircraft must notify the airport in question and the Federal Aviation Administration.

3. Owners or operators of SLF affected by parts 1 and 2 of this section will keep information and evidence to demonstrate the activities carried out in compliance with this Rule, include it in their operating record and notify the EQB.

E. Wetlands

A new SLS facility or a lateral expansion shall not be sited on wetlands or marshlands unless the owner or operator can demonstrate to the satisfaction of the Environmental Quality Board that:

1. the construction and operation of the facility:
 - a.
 - b.
 - c.
 - d.
2. the facility shall not cause or contribute to the significant degradation of wetlands, and owners or operators shall demonstrate that their facility is capable of protecting them in consideration of:
 - a.
 - b.

- c.
- d. the impact of waste leaks on ~~the fishing industry~~ fish, wildlife and on other aquatic resources and their respective habitats;
- e.
- f.

3.

4.

5. keep sufficient information available so that EQB inspectors may make a reasonable determination with respect to compliance with this rule.

RULE 541

DESIGN CRITERIA

A. Every new SLS and lateral expansions of existing SLSs must, ~~when built,~~ meet one of the following specifications:

1. ~~be designed in accordance with a plan certified as correct by an engineer licensed to practice the profession in Puerto Rico~~ **construction in accordance with a design approved by the EQB.** The design ~~shall be done so as to~~ must ensure that the concentration of the substances listed in Table I of this Chapter will not be exceeded at the sampling point of the upper aquifer. To achieve this, a system for monitoring underground waters will be used that is approved by the Environmental Quality Board;

2. have an initial layer of a composite or geosynthetic liner, **as defined in Rule 502,** with hydraulic conductivity of ~~no more than 1×10^{-5} cm/sec~~ and a leachate collection system designed and constructed to maintain less than 30 cm of ~~so that the leachate fluids flow on the lining.~~

B.

- 1.
- 2.
- 3.

C.

- 1.
- 2.
- 3.
- 4.

5. the availability of alternate drinking water supplies;

6. the present quality of the underground water, which shall include other sources of pollution and their cumulative impact on the water, and whether

it is used or can reasonably be expected to be used as a source of drinking water;

7. the effects on human health, public safety and the environment.

Rule 542 STANDARDS OF OPERATION

- A.
- B.

N. ~~sufficient~~ equipment and personnel **for operations follow-up, ground water and gas monitoring and** for excluding regulated hazardous solid waste or non-hazardous solid waste that requires special handling.

Rule 545 EQUIPMENT

Every SLS must have:

- A.
- B.
- C.
- D. **Storage facilities for equipment, parts, and for the servicing of heavy equipment.**

Rule 547 CONTROL OF EXPLOSIVE GASES

- A.

B. Owners or operators of SLSs shall implement a routine program for monitoring or tracking the concentration of methane gas to ensure that the facility complies with Paragraph C of this Rule. The program shall be carried out in accordance with a gas monitoring plan previously approved by the Environmental Quality Board. The type and frequency of measurement shall be determined based on:

1. **the soil conditions;**
2. **the hydrogeologic conditions surrounding the facility;**
3. **the hydraulic conditions surrounding the facility;**
4. **the location of facility structures and property boundaries;**
5. measurements made at least quarterly; and

6. monitoring results, which shall be preserved in the facility's record of operation for a minimum of three (3) years after the date of the results.

Rule 548

- A. a **run-on** control system to prevent the entry of water to the active portion of the sanitary landfill during the maximum discharge from a twenty-five (25) year rain;

Rule 549 ADDITIONAL STANDARDS OF OPERATION

- A.
B.

F. Waste will be covered daily with at least six (6) inches of compacted backfill material. The Board may approve another procedure pursuant to the provisions of Rule 546 C.

G. intermediate fill material shall be applied in layers where the daily fill is exposed for more than thirty (30) days and the thickness of said layer shall be at least twelve (12) inches of compacted fill material. If no use of the site is projected for one (1) year, some type of grass or vegetation must be planted to prevent erosion;

H. apply additional fill in areas impacted by erosion that has exposed waste that was previously covered;

I. the slopes of the final fill material shall carry rain or run-off water to specific points in the drainage system so that there is no stagnant water, erosion or infiltration through the system.

RULE 550 ADDITIONAL RECORD-KEEPING REQUIREMENTS

- A. The owner or operator of an SLS shall maintain and keep at its facility a record of operation that contains at least the following:

1. any demonstrations related to applicable siting restrictions required

2. inspections, training of personnel and the notification procedures required by Rules 535 and 547;
3. reports or results of gas monitoring or any corrective plans required

2. inspections, training of personnel and the notification procedures required by Rules 535 and 547;
3. reports or results of gas monitoring or any corrective plans required by ~~this Chapter~~ Rule 531 T;
4. any document related to the design of the SLS, where the controls of leachates and condensed gases required by Rule 541 of this Chapter are established;
5. any demonstration data, certifications, findings, monitoring, evidence, tests or analyses required by Part IV-C;
6. closure plans and post-closure activities plans, as well as any monitoring data, tests or analyses required by Part IV-D of this Chapter; and
7. documents related to cost estimates and financial guaranties required by Part IV-E of this Chapter.

B. The owner or operator shall ~~show~~ notify the Environmental Quality Board that the documents listed in Paragraph A of this Rule have been incorporated in the record of operation of the SLS, ~~when so required~~ **within five (5) working days.**

Rule 552 GENERAL PROVISIONS AND TIMETABLE FOR COMPLIANCE

A.
B.

C. The Environmental Quality Board may establish extensions to the above-mentioned deadlines for owners or operators of existing SLSs and lateral expansions by means of compliance plans submitted to and approved by the Environmental Quality Board.

1. Requests for extension may be considered provided the Environmental Quality Board is assured that at least fifty per cent (50%) of the SLS will establish its underground water monitoring system on or before October 9, 1994. All existing facilities shall establish their underground water monitoring system on or before October 9, 1996 ~~unless the request for extension is approved.~~

RULE 554 UNDERGROUND WATER QUALITY MONITORING SYSTEMS

A. The underground water quality monitoring systems shall be designed and installed with sufficient monitoring wells. These shall be installed at a suitable depth and location within the SLS in order to obtain samples from the upper aquifer that:

1. are representative of the background groundwater quality that has not been affected by infiltrations from the unit. A determination of background quality shall include samples from at least one (1) up-gradient well which is not located

hydraulically within the borders of the waste handling area and has been previously approved by the Environmental Quality Board, except:

- a) ~~when~~ **where** the hydrogeological conditions do not allow the owner or operator to determine which wells are located hydraulically up-gradient; or
- b) ~~when~~ **where** taking samples from other wells would provide groundwater quality value indicators that would be as ~~much or more~~ representative **or more** as ~~than~~ those from up-gradient wells;

Rule 555 MONITORING AND ANALYSIS PLAN (MAP)

- A. No person shall operate or allow the operation of an SLS's underground water quality monitoring system without first having an MAP approved by the Environmental Quality Board.
- B. All of the sampling and analyses from the underground water quality monitoring program shall be carried out in accordance with the MAP submitted to and approved by the Environmental Quality Board.
- C. **The procedures described in the SAP shall guarantee the results obtained in the ground water quality monitoring or tracking process at the background and down gradient wells installed in compliance with Rule 554.**
- D. The MAP shall include procedures and techniques for:
 - 1. measuring parameters; describing sampling; describing operational procedures for preparing equipment, monitoring and decontamination of equipment;
 - 2. taking, handling and preserving the samples;
 - 3. the analysis procedures and the chain of custody according to such methods, guidelines or regulations as the Environmental Quality Board may approve in this respect; and
 - 4. quality assurance and control.
- E. **The MAP must be certified by a licensed chemist authorized to practice in Puerto Rico, ~~engineer or professional with training and experience in the field of soil or underground water sampling,~~ and it shall be incorporated in the record of operation of the SLS.**

Rule 556 MONITORING AND ANALYSIS REQUIREMENTS

A.
B.

C. The level of the underground water shall be measured in each well immediately before the well is purged, ~~and~~ each time the underground water is ~~monitored~~ **sampled**. The owner or operator shall determine the rate and direction of flow of the underground water each time the monitoring is carried out. The levels of this water **in wells which monitor the same waste management area** must be measured ~~in the wells~~ within a short period of time to avoid ~~having~~ variations in the flow **that may prevent an accurate determination of the direction and rate of flow.**

Rule 557 DETECTION MONITORING PROGRAM

A.

B. Owners or operators of an SLS may request that the Environmental Quality Board allow them to eliminate any of the monitoring parameters of ~~Table I of this Chapter~~ **Appendix I of this Regulation** if they can demonstrate scientifically that it is not anticipated that the eliminated constituents be found in or formed from the waste.

C.

D. The sampling frequency for all of the constituents in Appendix I of this Regulation, or for any approved alternative list according to Paragraph C, shall be at least semiannual (semestral) during the active phase of a facility or as required by the Environmental Quality Board. This shall include the closure and post-closure periods of the SLS. During the first sampling, ~~three (3)~~ **four (4)** samples will be taken ~~and one (1) duplicate of the sample~~ from each background and down-gradient well ~~every six (6) months during the first year of sampling,~~ using the constituents of Appendix I, or any approved list in accordance with Paragraph C. **During subsequent semiannual samplings at least one sample from every background and down gradient well will be taken.**

E. Owners or operators may request that the Environmental Quality Board allow them to establish a reasonable alternative frequency for repeating the sampling and analyses for the constituents of Appendix I. This may also be done for any alternative list approved in accordance with Paragraph C during the active phase, closure and post-closure of the SLS. The alternative frequency during the active phase and closure shall not be less than one (1) year. Said request shall discuss the following to the satisfaction of the Environmental Quality Board:

1. the lithology of the aquifer and the unsaturated zone;

2. the hydraulic conductivity of the aquifer and the unsaturated zone;
3. the flow rate of the underground water;
4. the minimum distance between the up-gradient boundary of the SLS and the down-gradient chain of monitoring wells;
5. the resource value of the aquifer; and
6. *the identification, destination and migration of any detected constituent.*

F. If the owner or operator determines that there is a statistically significant increase at the monitoring point over the background concentration of one or more of the parameters or constituents specified in Table I of this Chapter, or in any approved alternative list in accordance with Paragraph C, they must:

- 1.
- 2.
3. demonstrate that a source other than the SLS was the cause of the pollution or that the statistically significant increase was due to errors in the sampling, analysis, statistical evaluation or natural variations in the quality of the underground water. A report shall be submitted to the Environmental Quality Board documenting this demonstration **certified by a qualified ground water scientist**. The approved report shall be included in the facility's record of operation. If the Environmental Quality Board verifies that the arguments contained in the document are correct, the owner or operator shall continue with their detection monitoring program. If within ninety (90) days the Environmental Quality Board has not concurred with the contents of the document, the owner or operator shall initiate an assessment monitoring program that complies with the requirements of Rule 558.

Rule 558 ASSESSMENT MONITORING PROGRAM

- A.
- B.

G. If one or more of the constituents of Appendix II is detected at ~~statistical~~ **statistically significant** levels that exceed the underground water protection standard established in Paragraphs H or I, during any monitoring event, the owner or operator shall include a notice in its record of operation within a period of fourteen (14) days after the finding, identifying the constituent that has been exceeded. A copy of this notice shall be sent to the Environmental Quality Board within that same period. Moreover, the owner or operator:

1. shall comply with the following requirements:

- a) ~~they~~ shall determine the nature and extent of the spill or release, installing additional monitoring wells as necessary;
- b) ~~they~~ shall install at least one additional monitoring well ~~within~~ at the boundaries of the facility in the direction of the pollutant migration, and shall sample and analyze for that pollutant as established in Paragraph D (2);
- c) ~~they~~ shall notify all persons whose properties or residences are located directly on the plume of pollution if the pollutants have migrated beyond the facility as indicated by the monitoring required by Rule ~~557-A~~ **558 G(1)(a)**; and
- d) ~~they~~ shall initiate an assessment of corrective measures in compliance with Rule 559, within a period of ninety (90) days after the finding; or

2. shall demonstrate that a source other than the SLS was the cause of the pollution, or that the statistically significant increase was due to errors in the monitoring, analysis, statistical evaluation, or to natural fluctuations in the quality of the underground water. A report with this demonstration shall be **certified by a qualified ground-water scientist and** submitted to the Environmental Quality Board for evaluation. Once said report is approved, it must be included in the facility's record of operation. If the Environmental Quality Board concurs with the reasoning of the report, the owner or operator must maintain a constant monitoring program that complies with the provisions of Paragraph E, and may return to detection monitoring if the concentrations of the constituents of Appendix II are equal to or less than the respective background values. As long as the Environmental Quality Board does not concur with the contents of the report, the owner or operator must comply with the provisions of Paragraph G(1)(a), including initiating the evaluation of corrective measures.

Rule 559 CORRECTIVE MEASURES EVALUATION

- A.
- B.

C. The evaluation shall include an analysis of the effectiveness of the potential corrective measures to achieve compliance with the requirements and objectives of Rule 560. The following shall be taken into consideration in this evaluation:

- 1. the performance, reliability, ease of implementation, probable impacts of the potentially appropriate remedies, including impact on safety, ~~environmental~~ **cross-media** impact and control of exposure to any residual pollution;

D. ~~The evaluation shall be sent to the Environmental Quality Board for its comments~~ **The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.**

Rule 560 SELECTION OF REMEDY

A.

B.

C. The proposal shall discuss how the owners or operators considered the following in selecting the remedy:

1. the effectiveness and degree of short- and long-term protection of the environment, along with the degree of certainty that the remedy will be successful based on:

d) short-term risks for the community, workers, or the environment during the implementation of the remedy, **including potential risks to human health and the environment** associated with excavation, transportation, and ~~containment barriers~~ **redisposal or release control**;

D. The owners or operators shall specify, as part of their proposal of the selected remedy, a timetable for beginning and completing the activities. The timetable shall establish a reasonable period of time for beginning them. The owners or operators shall consider the following factors in preparing the timetable of the remedial activities:

1. extent and nature of the pollution;
2. practical capability of the remediation technology to achieve compliance with the protection standards established in Rule 558 H or I, and with the objectives of the remedy;
3. availability of treatment or disposal capacity for the waste to be managed during the implementation;
4. desirability of using technologies that are not currently available, but which could offer significant advantages over already existing technology in terms of effectiveness, reliability, safety, or ability to achieve the outlined objectives;
5. potential risk to human health and the environment by exposure to the pollution before the implementation of the remedy;
6. resource value of the aquifer, which includes:
 - a) present and future uses;
 - b) degree of proximity of users and rate of extraction;
 - c) quantity and quality of the underground water;
 - d) potential damage to flora and fauna, crops and physical structures caused by exposure to the pollutants;
 - e) the hydrogeological characteristics of the facility and the surrounding land;
 - f) the costs of extraction and treatment of the underground water;
 - g) the availability and cost of alternative sources of water; ~~and~~
 - h) **technical capability of the owner o operator**;
 - i) other pertinent factors.

E.

- 1.
- 2.
- 3.
4. the remedy would have an unacceptable environmental **cross-media** impact.

F.

G. Before beginning the activities indicated in the proposal for the selected remedy, the Environmental Quality Board must be notified.

Rule 561 IMPLEMENTATION OF THE CORRECTIVE ACTION PROGRAM

B. The owner or operator may determine, based on information obtained after the implementation of the selected remedy **has begun**, that fulfillment of the requirements of Rule 560 B has not been achieved. In that event, the owner or operator shall implement other methods or techniques that can achieve fulfillment of said requirements unless a determination is made in accordance with Paragraph C.

C.

D. The management of all solid waste in accordance with the remedy required by Rule 560 or an interim measure required by Paragraph A(3) shall be done in such a way as to promote the protection of human health and the environment, **and in compliance with the Resource Conservation and Recovery Act (RCRA).**

RULE 565 CLOSURE CRITERIA

A. SLS owners or operators shall install a final cover system designed and constructed:

- 1.
- 2.
3. to minimize the erosion of the final cover by means of a layer which, after being compacted, has a minimum of six (6) inches of fill cover material capable of allowing the growth of **native** vegetation in the area.

B.

C.

D. The owner or operator must notify the Environmental Quality Board that the closure plan has been prepared and included in the facility's record of operations ~~within a period of six (6) months from the effective date of this Regulation, or by the date waste has begun to be received, whichever is later.~~

E.

H. After the closure of an SLS, the owner or operator shall notify the Environmental Quality Board by a certification, signed by an independent ~~engineer~~ **Professional Engineer (P.E.)** duly authorized to practice in Puerto Rico, verifying that the closure has been done in accordance with the closure plan and that the certification has been included in the record of operations.

I. Notation in the ~~Land Register~~ Property Registry

1. After the closure of any SLS, the owner or operator shall have a notation made in the ~~Land Register~~ **Property Registry** indicating that said land was used as an SLS; moreover, it must notify the Environmental Quality Board that the notation has been recorded and that a copy thereof has been included in the record of operations.

2. The notation in the ~~land register~~ **Property Registry** must exist in perpetuity to inform any potential buyer of the property that:

- a) the land was used for a sanitary landfill; and
- b) its use has been restricted in accordance with Rule 566 C(3).

Rule 566

E. After the conclusion of the post closure activities for every unit of the SLS, ~~The~~ the owner or operator shall notify the Environmental Quality Board by a certification, signed by an independent ~~engineer~~ Professional Engineer (P.E.) duly authorized to practice in Puerto Rico, verifying that the activities have been completed according to the plan and that the certification has been included in the record of operations.

RULE 567 APPLICABILITY AND EFFECTIVE DATE OF THE FINANCIAL REQUIREMENTS

A. This Part establishes the additional requirements applicable to owners or operators of sanitary landfill systems. Exempt from compliance with this Part are owners or operators that are **State or Federal government entities whose**

debts and liabilities are the debts and liabilities of the Commonwealth Government of Puerto Rico or of the United States of America.

~~B. The provisions of this Part became effective on April 9, 1994.~~

Rule 568 DEFINITIONS OF TERMS ACCORDING TO THE FINANCIAL REQUIREMENTS

A.

Post-closure activities plan – means the plan that has been prepared in accordance with the requirements of Rule 566 that details the activities that are to be carried out after the closure of an SLS. **These activities are: closure maintenance; maintenance and operation of leachate collection system; ground-water monitoring and tracking; maintenance and operation of a gas monitoring and tracking system.**

RULE 569 FINANCIAL ASSURANCE FOR CLOSURE

A. An SLS owner or operator shall have a detailed estimate in writing of the cost of contracting with a third party to carry out the closure of the largest part of the sanitary landfill requiring a final cover ~~some time as a requirement of~~ according to Rule 565 A, ~~or~~ at any time during the facility's active phase, according to the closure plan specified in rule 565 C.

B.

C.

D.

E.

F. The owner or operator may lower the closure cost estimate and the amount of financial assurance required by Paragraph H if changes in the conditions or in the closure plan increase [sic] the maximum cost of closure at any time during the active phase of the facility. The owner or operator shall notify the Environmental Quality Board of the rationale for reducing the closure cost estimate and the amount of financial assurance within a period of sixty (60) days after the modification, and shall maintain a copy of said rationale in the record of operations.

Rule 570 FINANCIAL ASSURANCE FOR POST-CLOSURE ACTIVITIES

G. The owner or operator shall **must** increase the post-closure **activities** cost estimate and the amount of assurance required by Paragraph J, if **changes in the post-closure plan or SLF unit conditions increase this cost estimate exceeds [sic]** the maximum cost of the post-closure activities.

H. The owner or operator may lower the post-closure cost estimate and the amount of financial assurance provided in Paragraph J, if **said estimates exceed the maximum costs of remaining post-closure activities during this period. changes in the conditions or in the plan increase [sic] the maximum costs for said period.** The owner or operator must notify the Environmental Quality Board of the rationale for reducing the estimate and amount of financial assurance within a period of sixty (60) days after the modification, and must maintain a copy of the explanation in the record of operations.

RULE 571 FINANCIAL ASSURANCE FOR CORRECTIVE ACTIONS

G. The owner or operator may reduce the corrective actions cost estimate and the amount of financial assurance stipulated in Paragraph A, if **said estimates exceed the maximum costs of remaining corrective action activities changes in the conditions or the plan during this period increase [sic] the maximum costs thereof.** The owner or operator must notify the Environmental Quality Board **within sixty (60) days of the modification that a copy of the rationale justification** for reducing the estimate and the amount of financial assurance **within a period of sixty (60) days after the modification, and shall keep a copy thereof was placed** in the record of operations.

Rule 572 FINANCIAL ASSURANCE MECHANISMS

D.

10. The Environmental Quality Board shall grant its written consent to terminate the insurance policy when:

- a) an owner or operator substitutes an alternative financial assurance specified in this Chapter;
- b) it deems that thereafter it is unnecessary for the owner or operator to maintain financial assurance because the provisions of Rules 569 H, 570 J and 571 I **do not apply [sic]** to them.

F. Use of multiple financial mechanisms

An owner or operator can meet the requirements of this Rule by establishing more than one financial mechanisms for each facility. Only these types of mechanisms are accepted: trust funds, surety bonds that guarantee the payments to the trust fund, letters of credit, and insurance policies. The owner or operator of an SLS shall have to provide financial assurance for an amount equal to at least the amount of the current cost estimate of closure, post-closure activities and corrective actions, as applicable. If an owner or operator uses a trust fund in combination with a surety bond or letter of credit, it may use the trust fund as a standby trust fund for the other mechanisms. A single standby trust fund can be established for use together with two or more financial mechanisms. The Environmental Quality Board may approve any or all mechanisms to assure the financial resources for closure of the unit. The financial test and guarantee provided by a corporate parent, sibling or grandparent cannot be changed ~~(sic; it should say combined)~~ if the financial statements of the two firms are consolidated.

Rule 641 CONSTRUCTION PERMITS

C. Information requirements

1. For building SLSs, transfer stations, processing facilities, and new or modified incinerating facilities for non-hazardous solid waste, the following information shall be submitted:

a) Every application for a permit to build an SLS, a transfer station or a processing facility shall include, in addition to what is required in Paragraph B of this Rule, the following:

1) information that shows that the design is suitable for the processes that will be carried out at said facility;

2) ~~in situations where the Environmental Quality Board so determines,~~ a map with a scale of 1:20,000 (quadrangle) or aerial photograph showing the use of the land and the zoning within a radius of one (1) mile of the facility;

3) a copy of the design plans and specifications for the facility. All plans and specifications shall be certified by an engineer authorized to practice the profession in Puerto Rico. A site location plan will be included, to a scale not greater than 1:2,400 (1" = 200'), which indicates the dimensions, elevations and distribution of the facility. ~~When required by the Environmental Quality Board,~~ The plot plan will also include specific geological information ~~shall be included~~ about the level and direction of groundwater flows. This information shall be obtained by means of test boreholes of the subsoil using generally accepted methods;

b) Every application for a permit to build a new or modified incinerator **thermal treatment facility** for non-hazardous solid waste shall include, in addition to what is required in Paragraphs B and C(1-a) of this Rule, the following information:

- 1)...
- 2) information related to the reuse or final disposal of the residue generated by the incinerator **or the thermal treatment facility**.

D. Permit conditions

The Environmental Quality Board will impose the following terms and conditions on permits granted under this Regulation, to which terms and conditions the applicant must agree when accepting the permit:

6. upon completion of the construction process, the permit holder shall submit to the Environmental Quality Board a certification to that effect, signed by ~~an engineer~~ **a Professional Engineer (P.E.)** authorized to practice the profession in Puerto Rico, in which it is stated that the facility has been built in accordance with the construction permit;

Rule 642 PERMIT TO OPERATE A NON-HAZARDOUS SOLID WASTE FACILITY

H. Operation tests

The applicant may carry out operation tests **in accordance with** ~~under~~ conditions previously approved by the Environmental Quality Board. Furthermore, the Board may observe the tests or require that they be carried out.

RULE 643. PERMIT TO OPERATE NON-HAZARDOUS SOLID WASTE COLLECTION ~~OR~~ AND TRANSPORTATION SERVICES

A. Permit requirement

No person shall operate or cause the operation of a non-hazardous solid waste collection ~~or~~ **and** transportation service without first applying for and obtaining a permit from the Environmental Quality Board.